

REMARKS/ARGUMENTS

Claims 21-23 were cancelled following a restriction requirement and claim 24 was previously cancelled. Claims 1-20 and 25 remain in the application.

A. Rejections under 35 U.S.C. 112.

Claims 1-4, 13-20 and 25 were rejected under 35 U.S.C. 112, first paragraph. The amendments to claims 1, 3, 13, 17 and 25 are believed to clarify that the claimed responses are packet-format responses and thereby overcome the rejection stated in the Office Action.

Claims 2, 4 and 19 were rejected under 35 U.S.C. 112, second paragraph. The amendments to claims 1-4 are believed to overcome the rejection of claims 2 and 4 by clarifying that the act of defining a maximum number of outstanding requests is conditional (claims 1 and 3) while at the same time specifically claiming an event (i.e., "when the interconnect is responsible for ordering) that determines the condition.

Claim 19 is amended to overcome the antecedent bases issues noted in the office action.

No new matter is added by these amendments.

B. Rejections under 35 U.S.C. 101.

Claims 1-20 and 25 were rejected under 35 U.S.C. 101 as directed to non-statutory subject matter. This rejection is respectfully traversed.

The office action characterizes the claims as directed to "a method that does nothing more than manipulating program parameters" or, alternatively, as "a...model that does nothing more than manipulating program parameters". Because these characterizations raise separate issues, they are treated separately.

Method claims 1-12 and 25 do indeed call for a method, but it is a method for designing a component of an integrated circuit. It is contemplated that

manipulating program parameters may be involved, but such activity is neither required nor specifically called for in the language of claims 1-12 and 25. The degree to which the actions performed in claims 1-12 and 25 are performed by a computer or a machine or a person are not specified in the claims. Accordingly, it is respectfully believed that claims 1-12 and 25 call for a sets of actions that define a method that is statutory subject matter under 35 U.S.C. 101.

Claims 13-20 call for various "models" that can be thought of as data structures or representations that are used in the design of an integrated circuit. Data structures are patentable subject matter under 35 U.S.C. 101 (See Lowry, 32 USPQ 1031 (Fed. Cir. 1994).

Accordingly, the rejection of claims 1-20 and 25 under 35 U.S.C. 101 should be withdrawn.

C. Double Patenting.

A terminal disclaimer to overcome the double patenting rejection will be submitted upon indication of allowable subject matter.

D. Rejections under 35 U.S.C. 102.

Claims 1-8 were rejected under 35 U.S.C. 102 based upon the newly cited McGeer reference. **Although not so stated, it appears that claims 9-20 and 25 are also rejected under 35 U.S.C. 102 based upon the McGeer reference, however, because this is the second Office action that has failed to state this rejection against claims 9-20 and 25, it is respectfully requested that any subsequent action confirm this understanding.** This rejection is respectfully traversed.

Independent claim 1 calls for, among other things, a method including an act of defining if the initiator or the interconnect is to be responsible for ordering responses. Further, claim 1 calls for determining if a delay stage is required in the initiator. At least these elements of claim 1 are not shown or suggested in the McGeer reference.

Independent claim 3 calls for, among other things, a method including an act of defining if the target or the interconnect is to be responsible for ordering responses. Further, claim 3 calls for determining if a delay stage is required in the target. At least these elements of claim 1 are not shown or suggested in the McGeer reference.

McGeer states at column 13, lines 24-26 that channels take the responsibility of delivering messages from invoking ports to invoked ports. Assuming for the sake of argument that a "channel" is analogous to the claimed interconnect, and that McGeer's invoking port is analogous to an initiator, it would appear that McGeer allows for some part of the channel to take responsibility for delivering messages. As the Office action points out, McGeer's suggests that in one application a "master" (i.e., invoking port) takes responsibility for delivering a message in order. Although McGeer's channel "faithfully" delivers packets, McGeer does not suggest that the channel does or can take responsibility for ordering packets. Faithfully delivering (i.e., ensuring that a packet, once sent, is delivered) is different from taking responsibility for ordering (i.e., ensuring that packets are sent in a particular relationship to other packets).

In fact, because the master appears to be the only entity responsible for maintaining order, there would be no need to implement the claimed action of "defining if the initiator or the interconnect is to be responsible for ordering packet-format_responses to packet-format requests issued by said initiator" called for in claim 1 or the activity of "defining if the target or the interconnect is responsible for ordering responses" called for in claim 3. With respect to claim 3, in particular, McGeer does not seem to contemplate that either the target or the interconnect will be responsible for ordering responses as only the "master" has this responsibility. For at least these reasons, claims 1 and 3 as well as claims 2 and 4 that depend from claim 3 are not shown or suggested by McGeer.

Moreover, McGeer's implementation described in Column 31, lines 28-30 does not involve defining if a delay stage is required as called for in claim 1. This passage in McGeer describe a method of determining whether a latch (delay stage) already exists, then responding appropriately. McGeer describes a method of responding to a priori knowledge that a delay state has been defined, whereas the claims of the present invention call for a method of defining whether the delay stage exists at all.

In view of the above, claims 1 and 3 are believed to be allowable over the McGeer reference. Claims 2 and 4 that depends from claims 1 and 3 are believed to be allowable for at least the same reasons as claim 1 and 3. Moreover, the citation of column 19, lines 11-13 of McGeer does not show or suggest the claimed activities of defining a "number of requests which are permitted to be outstanding are defined when the interconnect is responsible for ordering" as called for in dependent claims 2 and 4. This passage of McGeer discusses allocating FIFO entries in a channel, but does not suggest that this action is performed based on a determination that the interconnect is responsible for ordering, nor is it clear whether the FIFO entries are involved in ordering packets at all.

Independent claim 5 calls for, among other things, a method including an act of defining a number of routing resources. Column 16, lines 61-67 in McGeer discuss user defined channels, but this passage does not show or suggest defining any number of routing resources between an initiator and a target as called for in claim 5. In other words, what is the number of resources that is defined by the user defined channel? Paragraph 59 of the substitute specification describes this feature of claim 5 in greater detail noting that in embodiments of the present invention more than one resource (i.e., transport path) can be defined between an initiator port and a target port. In contrast, McGeer's various implementations all seem to require that a port can couple to only one channel (see, e.g., col. 17, lines 19-20). Hence, McGeer has no need

to define a number of routing resource, even when defining a user defined channel.

The "user defined channel" in McGeer defines a type of channel that can be defined, but does not define a number of routing resources between an initiator and a target. As noted at column 17, lines 20-21, a port can take messages only from one channel. With this restriction there would be little purpose in McGeer having a step of defining the number of routing resources as that number is restricted to be one. While the present invention includes a preferred implementation in which the number of routing resources is one, by allowing for the definition of more than one routing resource between a target and an initiator the invention of claim 5 provides a distinct improvement over the system shown in McGeer.

For at least these reasons claim 5 and claim 6 that depends from claim 5 are believed to be allowable over McGeer. Further, as noted above, McGeer does not show or suggest an activity corresponding to determining if a delay is required after arbitration as called for in claim 6.

Independent claim 7 calls for, among other things, a method including an act of defining if the initiator or the interconnect is to be responsible for ordering responses. Further, claim 7 calls for determining if a delay stage is required in the initiator. McGeer does not show or suggest an activity corresponding to determining if a delay is required after arbitration as called for in claim 8. At least these elements of claim 7 are not shown or suggested in the McGeer reference. The deficiencies of McGeer set out with respect to claim 5 apply with equal force to claim 7.

For at least these reasons claims 5 and 7, as well as claims 6 and 8 that depend from claims 5 and 7, are neither anticipated nor made obvious by McGeer.

Independent claims 9, 10, 11 and 12 call for methods of designing an arbiter in which the arbitration method specifies whether the initiator is responsible for time based ordering. This feature of claim 9 is not shown or suggested by McGeer. McGeer does not show or suggest either an interconnect or a target port that can responsible for time based ordering and therefore including an arbitration method that allows for this condition would serve no purpose. Certainly McGeer does not appear to describe such a feature in the arbitration method.

Moreover, it appears that McGeer's arbiter has only one arbitration method, not a plurality as called for in claims 12. For at least these reasons claims 9-12 are allowable over the relied on reference.

Claim 13 calls for, among other things, a model of an initiator that support an arrangement where either the initiator or the interconnect is responsible for maintaining the order of responses. As noted above, McGeer shows a system in which only one entity (e.g., the master) can take responsibility for ordering responses. Accordingly, claim 13 and claims 14-16 that depend from claim 13 are allowable over McGeer.

Claim 17 calls for a locking stage within the model of a target. First, the "shadow registers" cited in the Office Action refer to a structure defined in the initiator, not the target. Second, the port blocking described in column 14 of McGeer does not implement a locked transaction as that term is described in the specification, it merely prevents the port from receiving data. For at least these reasons claim 17 and claims 18-20 that depend from claim 17 are not shown or suggested by McGeer.

Claim 25 is believed to be allowable over McGeer for at least the same reasons as claim 1 stated above.

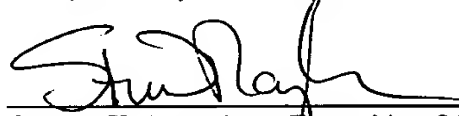
E. Conclusion.

In view of all of the above, claims 1-20 and 25 are now believed to be allowable and the case in condition for allowance which action is respectfully requested. Should the Examiner be of the opinion that a telephone conference would expedite the prosecution of this case, the Examiner is requested to contact Applicants' attorney at the telephone number listed below.

No fee is believed to be required by this response. Any fee deficiency associated with this submittal may be charged to Deposit Account No. 50-1123.

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Respectfully submitted,



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